

(19)

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 0 921 521 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
24.11.1999 Bulletin 1999/47

(51) Int Cl. 6: G11B 7/135

(43) Date of publication A2:
09.06.1999 Bulletin 1999/23

(21) Application number: 98309561.3

(22) Date of filing: 23.11.1998

(84) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU

MC NL PT SE

Designated Extension States:

AL LT LV MK RO SI

(30) Priority: 05.12.1997 KR 9766390

(71) Applicant: SAMSUNG ELECTRONICS CO., LTD.
Suwon-City, Kyungki-do (KR)

(72) Inventors:

- Yoo, Jang-Hoon
Youngdungpo-gu, Seoul (KR)

- Lee, Yong-Jae
Kwonsun-gu, Suwon-city, Kyungki-do (KR)
- Seong, Pyong-Yong
Songpa-gu, Seoul (KR)
- Lee, Chul-Woo
Yongsan-gu, Seoul (KR)

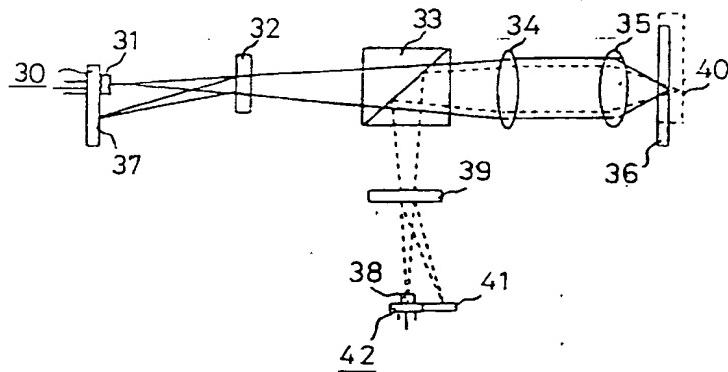
(74) Representative: Chugg, David John et al
Appleyard Lees,
15 Clare Road
Halifax, West Yorkshire HX1 2HY (GB)

(54) Optical pickup using objective lens compatible with a plurality of optical disks

(57) An optical pickup including an objective lens which is compatible with a plurality of optical disks of a respectively different specification such as a digital versatile disk (DVD), a compact disk-recordable (CD-R), a compact disk (CD) and a laser disk (LD) is provided, which includes at least one laser source (31), an objective lens (35) for focusing the light emitted from the laser source (31) on a respective information recording sur-

face of a plurality of optical recording media (36, 40) as an optimal optical spot, and an optical detector (37) for detecting the light having reflected from the information recording surface of the optical recording medium (36, 40) on which the optical spot has been focused and then having transmitted through the objective lens (35). Thus, the optical pickup can be compatible with a plurality of the optical disks of a respectively different specification irrespective of the thickness of the disk.

FIG. 3



EP 0 921 521 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 98 30 9561

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
P,X	EP 0 859 356 A (SAMSUNG ELECTRONICS CO LTD) 19 August 1998 (1998-08-19) * abstract; figures 2A-10 * * column 9, line 22 - column 14, line 46 * ---	1-3	G11B7/135
X	FR 2 744 831 A (SAMSUNG ELECTRONICS CO LTD) 14 August 1997 (1997-08-14) * abstract; figures 3-7 * * page 3, line 12 - page 6 *	1	
A	---	2,3	
X	EP 0 805 440 A (SAMSUNG ELECTRONICS CO LTD) 5 November 1997 (1997-11-05) * abstract; figures 6-12 * * column 7, line 38 - column 8, line 32 *	1	
A	---	2,3	
P,X	EP 0 865 037 A (HITACHI LTD) 16 September 1998 (1998-09-16)	1	
P,A	* abstract; figures 1-14 * * page 1, line 54 - page 9, line 14 *	2,3	
P,X	EP 0 838 812 A (KONISHIROKU PHOTO IND) 29 April 1998 (1998-04-29)	1	TECHNICAL FIELDS SEARCHED (Int.Cl.6)
P,A	* abstract; figures 1-4 * * page 5, line 5 - page 10, line 56 *	2,3	G11B
A	EP 0 807 928 A (KONISHIROKU PHOTO IND) 19 November 1997 (1997-11-19) * abstract; figures 1-14B * * page 4, line 42 - page 11, line 4 *	1-3	
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner:	
THE HAGUE	1 October 1999	Pariset, N	
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & member of the same patent family, corresponding document	
<input checked="" type="checkbox"/> particularly relevant if taken alone <input checked="" type="checkbox"/> particularly relevant if combined with another document of the same category <input checked="" type="checkbox"/> technological background <input type="checkbox"/> non-written disclosure <input type="checkbox"/> intermediate document			

ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.

EP 98 30 9561

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
 The members are as contained in the European Patent Office EDP file on
 The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

01-10-1999

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 0859356	A	19-08-1998	CN	1198567 A	11-11-1998
			JP	10228659 A	25-08-1998
FR 2744831	A	14-08-1997	DE	19700504 A	21-08-1997
			GB	2310308 A,B	20-08-1997
			IT	MI970014 A	08-07-1998
			JP	9219035 A	19-08-1997
			NL	1004954 C	10-12-1998
			NL	1004954 A	15-08-1997
			NL	1009796 C	19-05-1999
			NL	1009796 A	01-09-1998
			US	5909424 A	01-06-1999
EP 0805440	A	05-11-1997	BR	9701083 A	08-09-1998
			JP	2768665 B	25-06-1998
			JP	10055563 A	24-02-1998
			US	5870369 A	09-02-1999
EP 0865037	A	16-09-1998	JP	10255305 A	25-09-1998
			JP	11016190 A	22-01-1999
			CN	1197979 A	04-11-1998
EP 0838812	A	29-04-1998	JP	11096585 A	09-04-1999
EP 0807928	A	19-11-1997	JP	10055564 A	24-02-1998
			US	5808999 A	15-09-1998

THIS PAGE BLANK (USPTO)